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RED WOLF BS6050

RED WOLF BS6050 50A Circuit Breaker Instruction Manual

Model: BS6050 | DC 12-48V Automatic Circuit Breaker with Manual Reset

1. Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of your RED WOLF BS6050 50A Circuit Breaker. This device is designed to protect electrical systems from overcurrent conditions, preventing damage to your equipment.

Key Features:

- **Automatic Circuit Breaker with Manual Reset:** Features a visible reset lever indicating an open condition. The unique push-button reset mechanism allows for easy restoration of power.
- **Versatile Functionality:** Can be utilized as a kill switch, providing a master disconnect for circuits.
- **Overcurrent Protection:** Safeguards trolling motors and other electrical components from excessive current and power surges.
- **Wide Voltage Compatibility:** Suitable for DC system voltages ranging from 12V to 48V.
- **Durable Construction:** Features a pure copper screw inside and a thermal plastic UL rated 94V0 housing.
- **Easy Installation:** Designed for panel or firewall mounting.
- **Broad Application:** Ideal for auxiliary and accessory circuits in boats, RVs, yachts, battery systems, trailers, buses, trucks, ATVs, winches, battery chargers, and DC sound amplifier systems.

2. Safety Information

Always prioritize safety when working with electrical systems. Failure to follow these guidelines may result in personal injury or damage to equipment.

- **Disconnect Power:** Always disconnect the power source before installing or servicing the circuit breaker.
- **Proper Amperage:** Ensure the circuit breaker's amperage rating matches the requirements of your circuit to prevent overload or under-protection.
- **Correct Wiring:** Use appropriate wire gauges for the current load as specified in the wiring section. Incorrect wiring can lead to overheating and fire hazards.
- **Professional Installation:** If you are unsure about any aspect of the installation, consult a qualified electrician or marine technician.
- **Environmental Conditions:** Ensure the installation location is suitable for the circuit breaker's specifications

(e.g., waterproof, ignition protected).

3. Product Overview

The RED WOLF BS6050 is a robust 50A automatic circuit breaker designed for various DC applications. It features a manual reset switch for convenient operation.

Components:

- **Circuit Breaker Unit:** The main body housing the electrical components.
- **Manual Reset Lever:** A yellow lever that indicates the breaker's status (ON/OFF/TRIP) and allows for manual reset.
- **Terminals:** Two screw studs (5/16"-18) for connecting electrical wires.
- **Mounting Holes:** Holes for securing the unit to a panel or firewall.



Figure 3.1: Front view of the RED WOLF BS6050 50A Circuit Breaker, showing the yellow reset lever, 50A rating, and terminals. Three mounting screws are also visible.



Figure 3.2: Diagram illustrating the product dimensions: 1.6" (41mm) height, 3.45" (87mm) length, and 2.3" (58.7mm) width. Detailed measurements for the stud height and overall footprint are also provided.

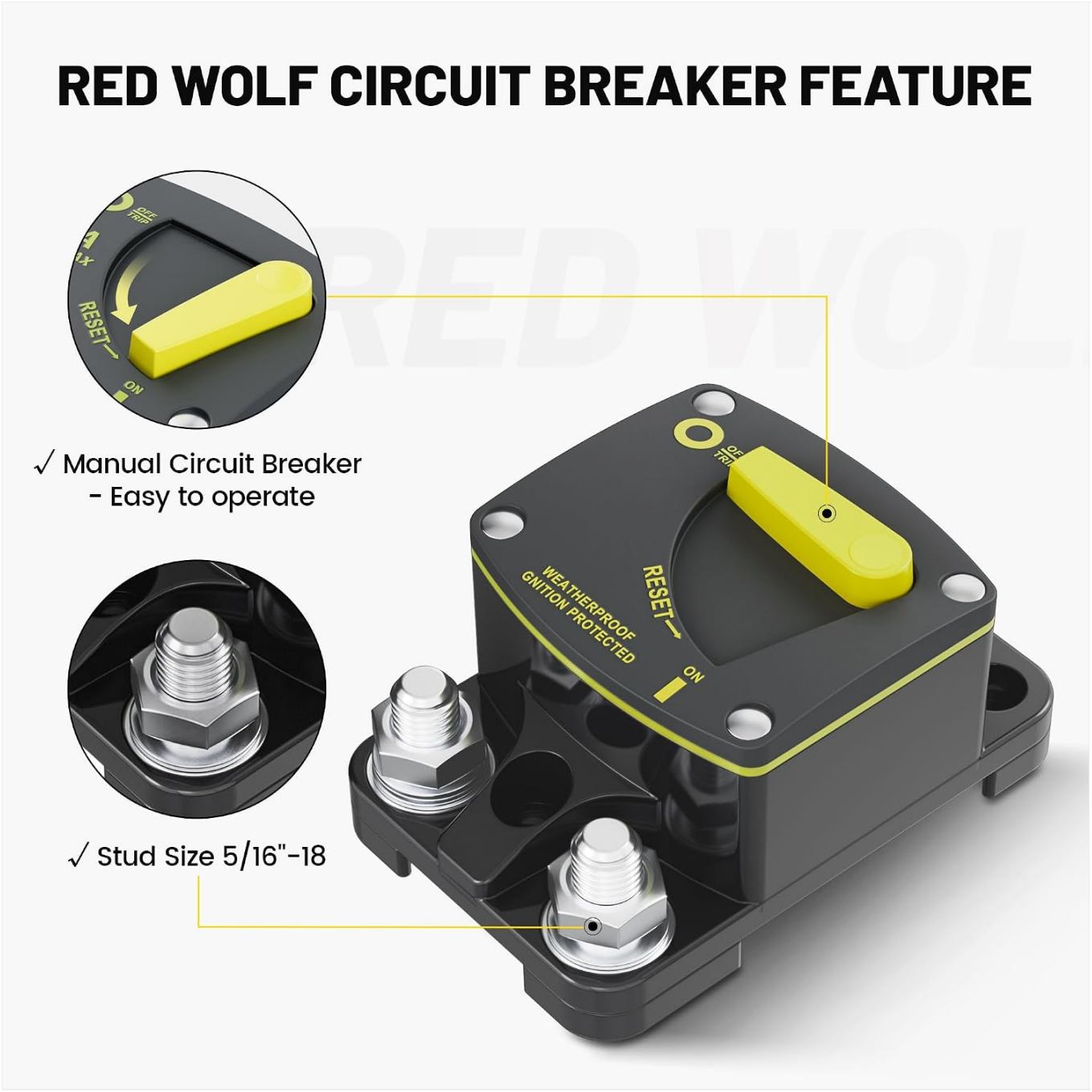


Figure 3.3: Close-up view highlighting the manual circuit breaker feature for easy operation and the stud size of 5/16"-18 for secure connections.



Figure 3.4: Detailed view of the circuit breaker, showing the front with the automatic circuit breaker function, screw stud for 5/16" screw, and a note that both terminals can connect to a battery or device. The back view shows the durable plastic housing and screw holes.

4. Setup and Installation

Careful installation is crucial for the proper functioning and safety of the circuit breaker.

4.1 Mounting

The circuit breaker can be mounted on a panel or firewall. Choose a location that is easily accessible for operation and inspection, and protected from direct exposure to harsh elements if not rated for such conditions.

1. **Select Location:** Identify a flat, stable surface for mounting.
2. **Mark Holes:** Use the circuit breaker as a template to mark the positions for the mounting screws.
3. **Drill Pilot Holes:** Drill appropriate pilot holes for the provided screws.
4. **Secure Breaker:** Fasten the circuit breaker securely using the provided screws.



Figure 4.1: Illustration of the manual reset design. The top image shows the breaker in a 'Working' state (lever down, ON). The bottom image shows the breaker in a 'Stop working' or 'Tripped' state (lever up, OFF/TRIP). Note: The 'Trip Free' design prevents holding the lever 'ON' during a fault current condition.

4.2 Wiring

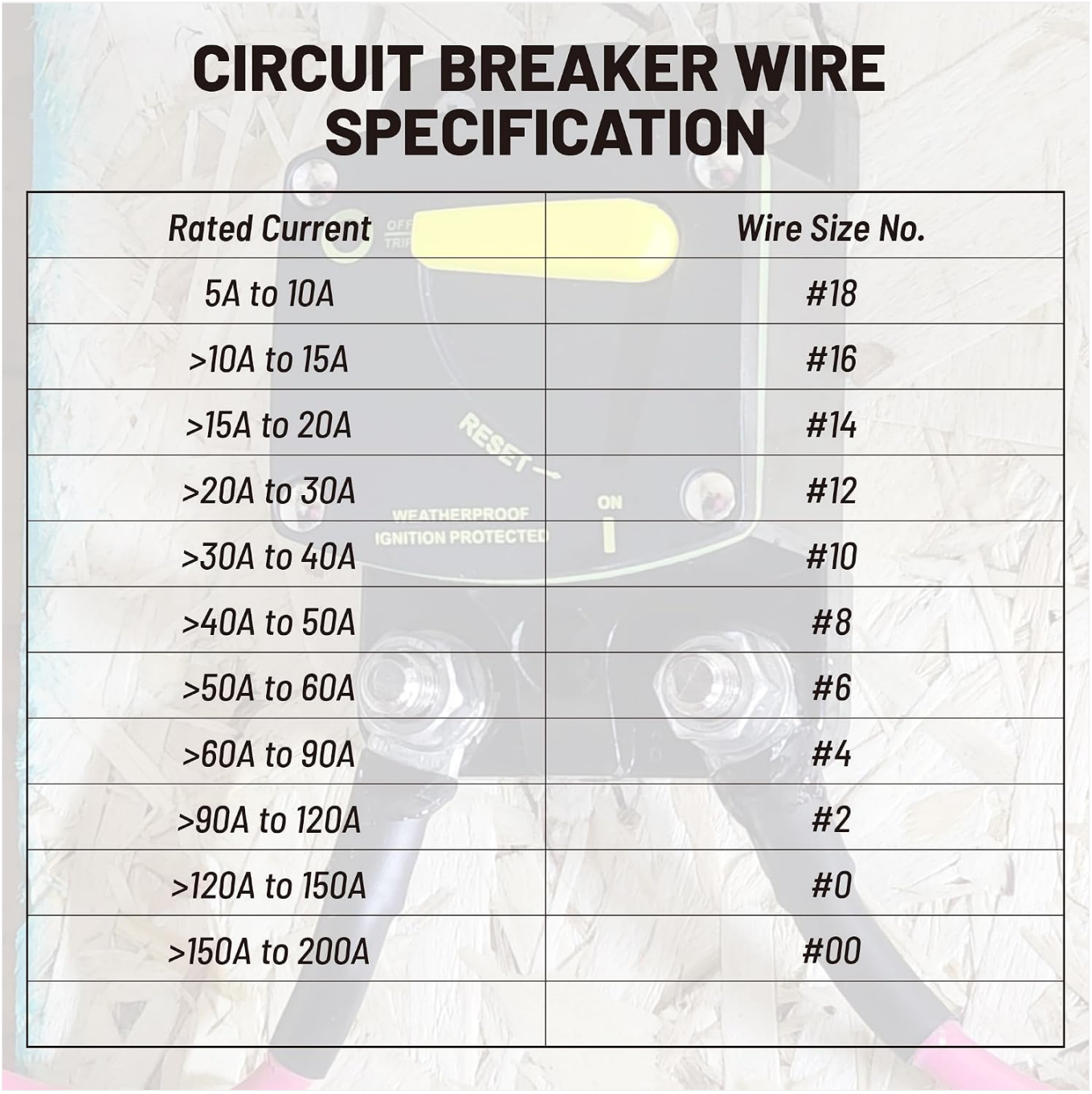
Connect the circuit breaker in series with the positive (+) line of the circuit you wish to protect. Ensure all connections are tight and secure to prevent resistance and heat buildup.

1. **Identify Terminals:** The circuit breaker typically has clearly marked input (BAT) and output (AUX/LOAD) terminals.
2. **Connect Input:** Connect the positive (+) wire from your power source (e.g., battery) to the input terminal.
3. **Connect Output:** Connect the positive (+) wire leading to your device or load (e.g., trolling motor, audio system) to the output terminal.
4. **Grounding:** Ensure the negative (-) side of your circuit is properly grounded.

Wire Size Specification:

Refer to the table below for recommended wire sizes based on the rated current. Using an undersized wire can lead to

overheating and potential fire hazards.



CIRCUIT BREAKER WIRE SPECIFICATION

Rated Current	Wire Size No.
5A to 10A	#18
>10A to 15A	#16
>15A to 20A	#14
>20A to 30A	#12
>30A to 40A	#10
>40A to 50A	#8
>50A to 60A	#6
>60A to 90A	#4
>90A to 120A	#2
>120A to 150A	#0
>150A to 200A	#00

Figure 4.2: Table showing recommended wire sizes (AWG) for various rated current ranges, from 5A to 200A.

Installation Diagrams:

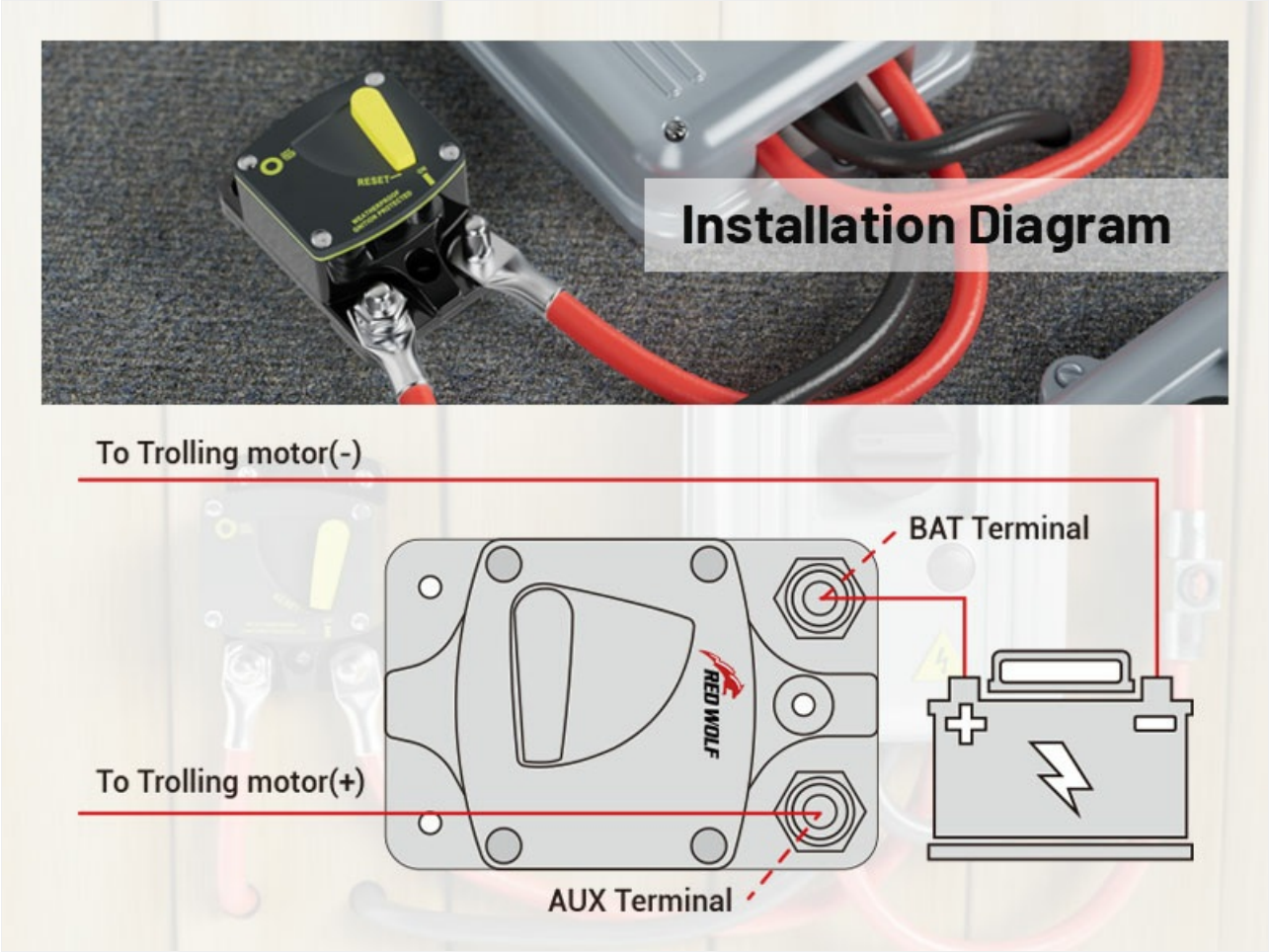


Figure 4.3: An installation diagram illustrating how to connect the circuit breaker between a battery and a trolling motor. The positive (+) line from the battery connects to the BAT terminal, and the positive (+) line to the trolling motor connects to the AUX terminal.

Figure 4.4: A visual example of the circuit breaker installed, showing a hand holding the unit with wires connected, demonstrating a typical application.

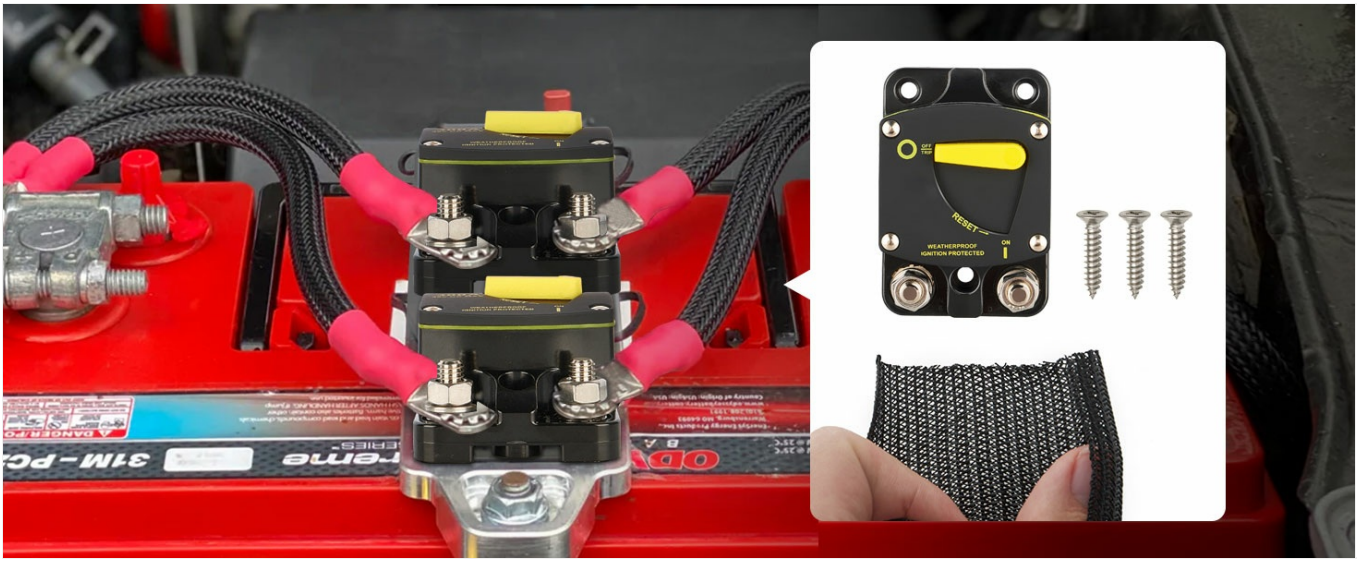


Figure 4.5: An example showing multiple circuit breakers installed in series on a battery bank, providing protection for different circuits.

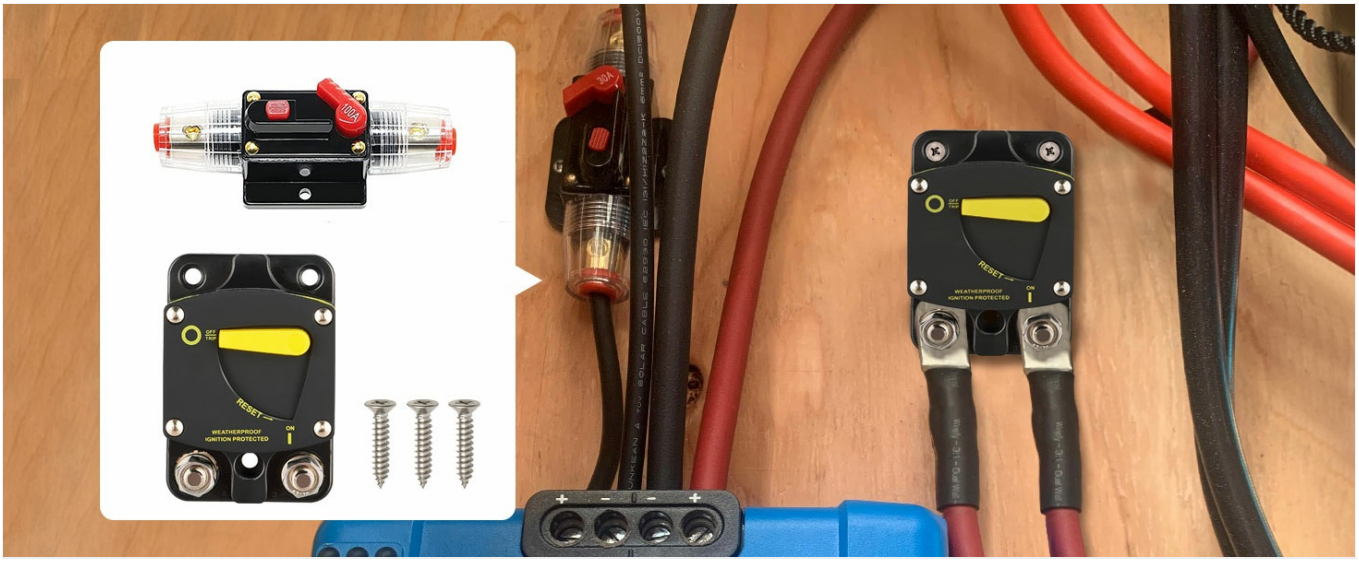


Figure 4.6: An illustration of the circuit breaker integrated into a system alongside an inline fuse holder, demonstrating a comprehensive protection setup.



Figure 4.7: This image shows the circuit breaker connected to a fuse box, providing primary protection before power is distributed to multiple circuits through the fuse box.

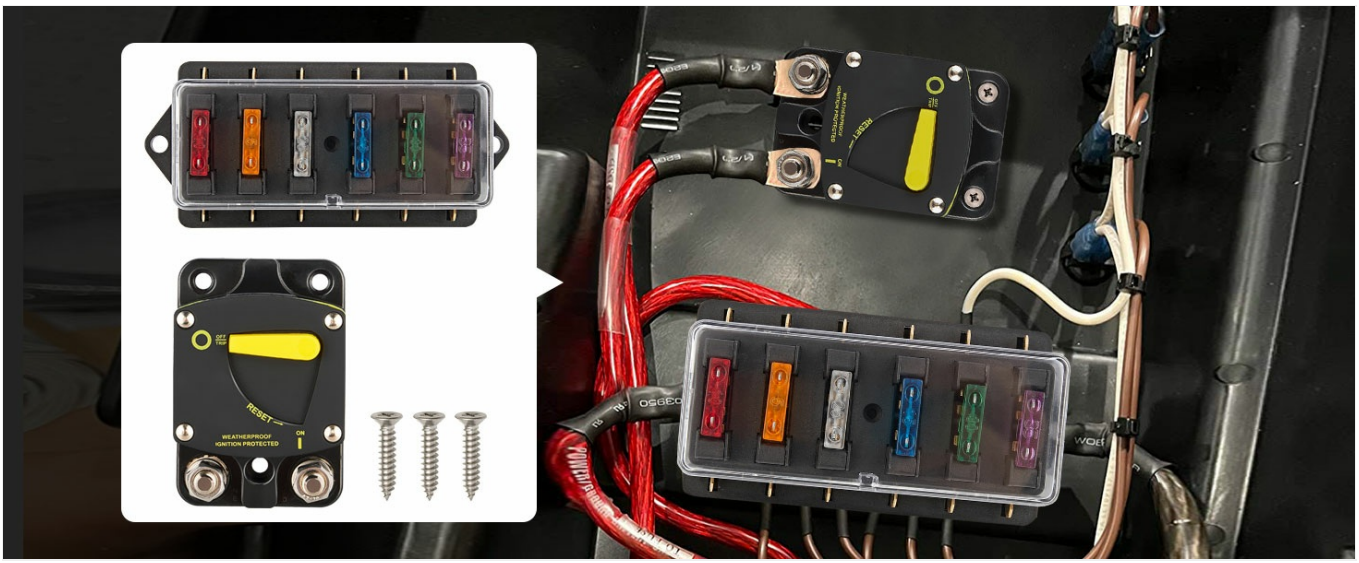


Figure 4.8: A visual guide demonstrating the ease of installation, including steps for connecting wires to the studs and mounting the unit. The image emphasizes that no special tools are required and screws are included.

5. Operating Instructions

The RED WOLF BS6050 circuit breaker offers both automatic overcurrent protection and manual control.

5.1 Manual Reset Function

1. **Tripped State:** If an overcurrent condition occurs, the circuit breaker will automatically trip, and the yellow lever will move to the 'OFF/TRIP' position. This indicates that the circuit is open and power has been interrupted.
2. **Resetting:** To restore power, first identify and resolve the cause of the overcurrent. Once the issue is addressed, push the yellow lever back down to the 'ON' position.
3. **Trip Free Design:** The breaker features a 'Trip Free' design, meaning it cannot be held in the 'ON' position if a fault current condition still exists. It will immediately trip again if the fault persists.

5.2 On/Off Switch Function

The circuit breaker can also be used as a manual disconnect switch for your circuit.

1. **To Turn Off:** Manually push the yellow lever up to the 'OFF/TRIP' position to disconnect power to the circuit.
2. **To Turn On:** Push the yellow lever down to the 'ON' position to restore power.

6. Maintenance

Regular maintenance helps ensure the longevity and reliable performance of your circuit breaker.

- **Visual Inspection:** Periodically inspect the circuit breaker for any signs of physical damage, corrosion, or loose connections.
- **Clean Terminals:** Ensure the terminals are clean and free of dirt or corrosion. Use a non-abrasive cleaner if necessary.
- **Check Connections:** Verify that all wiring connections are tight and secure.
- **Environmental Protection:** If installed in a harsh environment, ensure any protective covers or enclosures are intact and functioning correctly.

7. Troubleshooting

If your circuit breaker is not functioning as expected, consider the following common issues and solutions:

- **Breaker Trips Repeatedly:**
  - **Cause:** Overcurrent or short circuit in the protected circuit.
  - **Solution:** Disconnect all loads from the circuit. Reset the breaker. If it trips again immediately, there is a short circuit in the wiring. If it holds, reconnect loads one by one to identify the faulty device.
- **Breaker Does Not Reset:**
  - **Cause:** Persistent overcurrent/short circuit, or internal damage to the breaker.
  - **Solution:** Ensure the fault has been cleared. If the breaker still won't reset, it may be damaged and require replacement.
- **No Power to Device, Breaker is ON:**
  - **Cause:** Loose wiring connection, faulty device, or open circuit elsewhere.
  - **Solution:** Check all wiring connections to and from the breaker. Test the device directly if possible. Inspect other components in the circuit.

8. Technical Specifications

Specification	Value
Brand	RED WOLF
Model Number	RWF-BS6050-1714
Current Rating	50 Amps
Voltage Rating	DC 12-48 Volts (Max 48V)
Product Dimensions (L x W x H)	3.45" x 2.3" x 1.6" (87mm x 58.7mm x 41mm)
Item Weight	8.4 ounces
Circuit Breaker Type	Standard, Automatic with Manual Reset
Mounting Type	Panel Mount
Number of Poles	1
Stud Size	5/16"-18
Housing Material	Thermal Plastic UL rated 94V0



Figure 8.1: An overview of the different amperage ratings available for RED WOLF circuit breakers, ranging from 30A to 300A, all sharing a similar design.

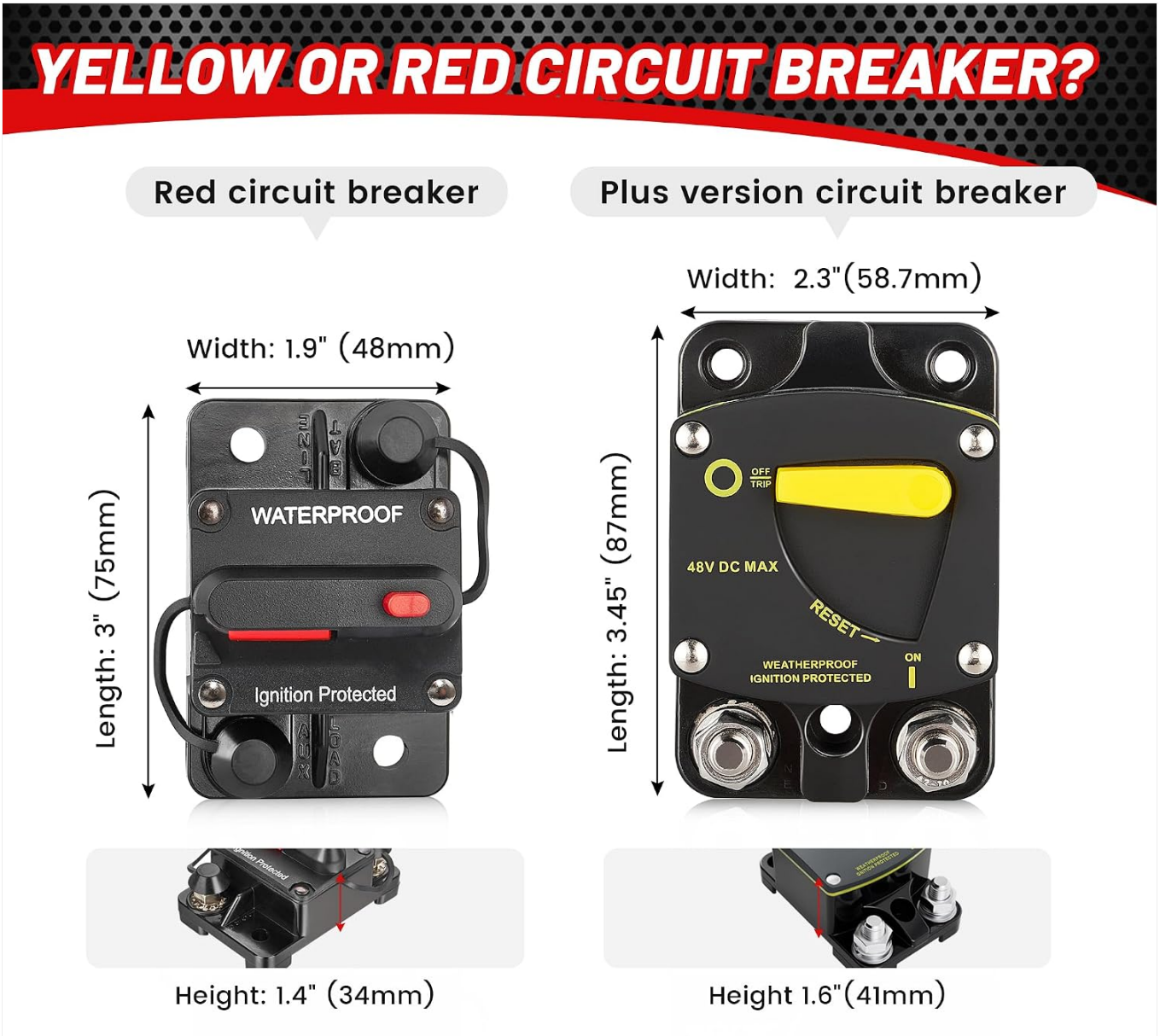


Figure 8.2: A comparison image showing the dimensions of a 'Red circuit breaker' (waterproof, 3" length, 1.9" width, 1.4" height) and the 'Plus version circuit breaker' (yellow lever, 3.45" length, 2.3" width, 1.6" height). Both types are rated for 12V-48V.

9. Warranty and Support

RED WOLF products are manufactured to high-quality standards. For specific warranty details, please refer to the product packaging or contact RED WOLF customer support directly.

If you encounter any issues or have questions regarding your RED WOLF BS6050 Circuit Breaker, please contact our customer support team for assistance. Provide your model number and a detailed description of the issue to facilitate a quicker resolution.

Contact Information: Please visit the official RED WOLF website or your retailer's support page for the most current contact details.

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Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

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